

PATENT

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TITLE:

**LATTICE STRUCTURE FORMING A
SURFACE OF GEMSTONES**

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LATTICE STRUCTURE FORMING A SURFACE OF GEMSTONES

BACKGROUND OF THE INVENTION

Field of the Invention

This invention relates to a structural device for mounting gemstones to form an article of jewelry or similar object.

Description of Related Art

Traditional jewelry includes one or more gemstones that are individually mounted in a setting that securely retains each gemstone. Traditional jewelry containing multiple gemstones often appears as a series or arrangement of discrete gemstones within individual settings rather than a uniform array of gemstones forming a unitary appearance.

SUMMARY OF THE INVENTION

The surface appearance of a plurality of gemstones can be formed with a regular array of gemstones, each individually seated on a metal bezel support that preferably matches a pavilion shape of the gemstone. The gemstones are secured, at least in part, with shared prongs, preferably of metal, to create a lattice structure that can have an appearance of a surface of gemstones.

Each gemstone requires at least two prongs to secure the gemstone onto a seat of the bezel. When two or more gemstones are attached with respect to each other, the array of gemstones is formed. The structure of this invention can be designed to accommodate any gemstone shape.

BRIEF DESCRIPTION OF THE DRAWINGS

These and other objects and features of this invention will be better understood from the following descriptions taken in conjunction with the drawings wherein:

5 Fig. 1 shows a partial cutaway view of a module having a seat secured between two prongs according to one preferred embodiment of this invention;

 Fig. 2 shows the module shown in Fig. 1, but with a gemstone mounted on the seat of the module;

10 Fig. 3 shows a top view of a building block for a lattice structure, according to one preferred embodiment of this invention;

 Fig. 4 shows a top view of a 2 x 2 lattice structure, according to one preferred embodiment of this invention;

 Fig. 5 shows a top view of a 3 x 3 lattice structure, according to one preferred embodiment of this invention;

15 Fig. 6 shows a top view of a 4 x 4 lattice structure, according to one preferred embodiment of this invention;

 Fig. 7 shows a top view of a building block similar to Fig. 3 with mounted gemstones, according to this invention;

20 Fig. 8 shows a top view of a lattice structure similar to Fig. 4 with mounted gemstones, according to this invention;

Fig. 9 shows a top view of a lattice structure similar to Fig. 5 with mounted gemstones, according to this invention;

Fig. 10 shows a top view of a lattice structure similar to Fig. 6 with mounted gemstones, according to this invention;

5 Fig. 11 shows a top view of one configuration of a building block for a lattice structure according to one preferred embodiment of this invention;

Fig. 12 shows a top view of six of the lattice structure configurations of Fig. 11, connected with respect to each other;

10 Fig. 13 shows a top view of one configuration of a lattice structure having square or rectangular gemstones according to one preferred embodiment of this invention;

Fig. 14 shows a top view of one configuration of a lattice structure having square or rectangular gemstones according to one preferred embodiment of this invention;

15 Fig. 15 shows a top view of one configuration of a lattice structure, according to another embodiment of this invention;

Fig. 16 shows a top view of the configuration shown in Fig. 15 having mounted gemstones;

20 Fig. 17 shows a top view of a lattice structure attached with respect to a ring, according to one preferred embodiment of this invention; and

Fig. 18 shows a top view of a lattice structure attached with respect to a pendant, according to one preferred embodiment of this invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Figs. 1-18 show different perspective views of different embodiments of a mounting for a gemstone 15 particularly to form lattice structures and elements for lattice structures which comprise an article of jewelry or similar object containing multiple gemstones 15, according to this invention.

As used in the specification and claims, an article of jewelry 10 as described and claimed may include, but is not limited to, a ring, a pendant, a bracelet, a pin, a necklace, a collar, earrings, a broach, any combination thereof and/or any other article of jewelry including two or more gemstones known to those having ordinary skill in the art. In addition, the gemstone 15 may comprise a marquis, round, square, pear or any other cut of gemstone known to those having ordinary skill in the art.

As shown in Fig. 1-6, the article 10 may include a seat 21. The seat 21 may comprise a conical taper, such as shown in Fig. 1, a tapered ring, a cylinder, a wire ring or any other suitable structure that engages with the gemstone 15. The gemstone 15 is accordingly positioned on, in or with respect to the seat 21.

Fig. 1 shows a single module 20. As shown in Fig. 1, module 20 comprises two prongs 25 spaced apart from each other. Each prong 25 preferably has bezel 26 within an upper portion of prong 25. The two prongs 25 are preferably positioned one on each side of the gemstone 15. The prongs 25 preferably each

include a bezel 26 formed therein so that the gemstone 15 is retained within the bezel 26. Seat 21 and/or bezel 26 can have any suitable shape that accommodates the shape and/or size of gemstone 15. Fig. 1 shows module 20 without a mounted gemstone. Fig. 2 shows module 20 of Fig. 1 but with gemstone 15 mounted within seat 21 and within bezels 26. Each gemstone 15 preferably has at least two prongs 25 for securely mounting or attaching gemstone 15 with respect to module 20. Although not shown in Figs. 1 and 2, each module 20 may comprise three or more prongs 25, depending upon the particular size and shape of gemstone 15.

As described, the seat 21 and prongs 25 preferably form a single unit within an array or lattice of gemstones 15. As such, additional seats 21, prongs 25 and/or gemstones 15 are added to form a row and/or array of gemstones 15. To facilitate such an arrangement, a shared prong 35 is used between adjacent gemstones 15 to form a “building block” for an array of gemstones 15. The basic element or building block as described is best shown Fig. 3. As shown in Figs. 3-6, each seat 21 preferably corresponds with two prongs 25 and a shared prong 35. Figs. 7-10 correspond to lattice structures 10 as shown in Figs. 3-6, respectively, but Figs. 7-10 show mounted gemstones 15. With two or more gemstones 15 in the array, such as shown in Figs. 7-10, the outermost gemstones 15 of each array has an unattached outer edge 16 which aesthetically appears as a floating edge.

Accordingly, an additional gemstone 15 is positioned on an additional seat 21 and two additional prongs 25 are positioned one on each side of the additional

gemstone 15, each prong 25 of the two additional prongs 25 having a bezel 26 formed therein so that the additional gemstone 15 is retained within the bezel 26. In addition, the shared prong 35 is positioned between the gemstone 15 and the additional gemstone 15. The shared prong 35 preferably includes a bezel 26 formed on each side of the shared prong 35 to partially engage with a respective inner edge 17 of the gemstone 15 and inner edge 17 of the additional gemstone 15. The article of jewelry 10 thus may include gemstones 15 around a periphery of the article of jewelry 10 have an exposed and unbound outer edge 16. Each exposed and unbound outer edge 16 is thus opposite the shared prong 35 and the respective inner edge 17.

The arrangement may be repeated with further additional seats 21, gemstones 15 and/or shared prongs 35 to create a row of gemstones 15. Multiple rows of gemstones 15 may be connected with respect to each other to form an array or lattice of gemstones that is integrated with the article of jewelry 10.

Such an array of gemstones 15 preferably includes a shared prong 35 positioned between each additional gemstone 15 that is shared between adjacent gemstones 15. Preferably, the article of jewelry is thereby created wherein each gemstone 15 includes an inner edge 17 that is positioned against a common shared prong 35 and along an outer edge or periphery of the article of jewelry 10, each gemstone 15 includes an exposed and/or unbound outer edge 16, i.e., an outer edge 16 not bound or restrained with a prong 25 or shared prong 35. The shared prong 35 preferably includes a pair of bezels 26 formed along each of two opposite sides of the

shared prong 35 so that the pair of bezels 26 accommodate inner edges 17 of adjacent gemstones 15.

Such arrays of gemstones 15 may be formed into a ring shape, a lattice, a star or any other suitable shape, configuration or arrangement that facilitates placement on, or creation of, an article of jewelry 10. Fig. 10 shows how lattice structure 10 of this invention can be used to form an overall structure that appears as a surface of gemstones.

Figs. 3-6 each shows a different configuration of lattice structure 40, according to this invention. Fig. 3 shows module 20 having two prongs 25 and the shared prong 35. Fig. 4 shows a configuration wherein two modules 20 share the common shared prong 25. The outer edges of each seat 21, as shown in Fig. 5, preferably have no corresponding or attached prong 25. Thus, as shown in Fig. 10 for example, the corresponding edge portion 16 of gemstone 15 is free, having no corresponding prong 25, and thus aesthetically appears to float with no attached mounting. Figs. 8-10 show a 2 x 2 array, a 3 x 3 array and a 4 x 4 array, respectively.

According to a preferred embodiment of this invention, seat 21 is mounted between and connects prongs 25 and shared prong 35. Seat 21 can alternatively be integrated with prongs 25. Fig. 15 shows one preferred embodiment where prong 25 is integrated with seat 21 of module 20. Fig. 16 shows modules 20 as shown in Fig. 15, but with gemstones 15 mounted within corresponding modules 20. Outer and/or inner prongs 25, as shown in Figs. 15 and 16, can be eliminated to

provide a free outer edge 16, as discussed in other embodiments of this invention. Seat 21 can also be an individual component secured to prongs 25 in any suitable manner known to those skilled in the art of jewelry design and manufacture.

Fig. 11 shows another embodiment of a configuration having an array of three gemstones 15. As shown in Fig. 11, each gemstone 15 is supported by a prong 25 and two shared prongs 35. Fig. 12 shows a configuration having six of the arrays of Fig. 11 attached with respect to each other.

Figs. 13 and 14 each shows a different configuration of an array of four gemstones 15. As shown in Figs. 13 and 14, each gemstone 15 is supported or mounted at two prongs 25 and two shared prongs 35. The array of four gemstones 15 as shown in Fig. 14 provides a relatively small space between adjacent gemstones 15. The configuration shown in Fig. 13 provides negative space 30 between the four gemstones 15.

Figs. 3-16 are intended to show examples of different configurations of arrays of gemstones 15, formed by lattice structure 10 according to this invention. This invention also contemplates other arrangements that include an array of two or more gemstones 15.

Each array of this invention may include all similarly shaped gemstones 15, or can include differently shaped gemstones 15. Each gemstone 15 can have a shape which is round, square, triangular, baguette, marquise, oval, or any other shape that is a standard or even non-standard shape for a gemstone, such as a diamond. As

such, prongs 25, shared prongs 35, bezels 26 and/or seats 21 can be configured in different sizes and shapes to accommodate differently sized and shaped gemstones 15.

Lattice structure 10 of this invention can be used to mount gemstones 15 to form a piece of jewelry that appears to have a flat, concave and/or convex surface of gemstones. Fig. 17 shows a lattice structure 10, having a generally concave surface, attached with respect to a ring mounting. With certain edges unattached to prong 25 or another similar structure, the overall surface formed by gemstones can also appear to be somewhat floating, particularly when viewed from above, such as shown in Fig. 10. Further, Fig. 18 shows a lattice structure as applied to a pendant having a plurality of gemstones 15 arranged in an array.

Prongs 25, bezels 26, seats 21 and/or gemstones 15 can be made of any metal or non-metal material which is suitable for structurally mounting gemstone 15 with respect to module 20.

While in the foregoing specification this invention has been described in relation to certain preferred embodiments thereof, and many details have been set forth for purpose of illustration, it will be apparent to those skilled in the art that the invention is susceptible to additional embodiments and that certain of the details described herein can be varied considerably without departing from the basic principles of the invention.